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**GRADUATE DIVISIONS**  
**LOYOLA UNIVERSITY BULLETIN**  
**ANNOUNCEMENTS 1966-1967**

New Orleans, La.

January, 1966

## GRADUATE DIVISIONS

of

Arts and Sciences

Business Administration

Member of the American Association of Collegiate Schools of Business.

Member of the Southern Association of Colleges and Secondary Schools,

Member of the National Catholic Educational Association.

Member of the Jesuit Educational Association.

Member of the Association of American Colleges.

Member of American Association of Colleges for Teacher Education.

Accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary teachers, secondary teachers, and principals leading to the Bachelor's or the Master's degree.

Approved for Teacher Education by the Louisiana State Board of Education.

Loyola University, Incorporated April 15, 1912. Authorized to grant degrees by The General Assembly of Louisiana for the year 1912.

The Legal and Corporate Title of the University is

"LOYOLA UNIVERSITY, NEW ORLEANS"

All donations, endowments, legacies, bequests, etc., should be made under this title.

Cover Design: WILLIAM TOYE

*Ad Majorem Dei Gloriam*

# Loyola University



## GRADUATE DIVISIONS

1966-1967

6363 ST. CHARLES AVENUE  
NEW ORLEANS, LA. 70118  
UNIVERSITY 6-5471

# Administration

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REVEREND JOHN F. KELLER, S.J., *Executive Vice-President*  
REVEREND ANTHONY C. O'FLYNN, S.J., M.A., S.T.L.,  
*Dean, College of Arts and Sciences*  
HENRY J. ENGLER, JR., M.B.A., *Dean, College of Business Administration*  
REVEREND DANIEL W. PARTRIDGE, S.J., A.B., *Dean of Students*  
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FRANK J. STASS, M.B.A., *Registrar*  
JAMES W. DYSON, A.M., B.S., IN L.S., *Librarian*  
G. RALPH SMITH, PH.D., *Director of Graduate Division of  
Business Administration*  
REVEREND JOSEPH B. TREMONTI, C.S.V., PH.D., *Chairman,  
Graduate Division of Education*  
REVEREND JOHN H. MULLAHY, S.J., PH.D., *Chairman, Graduate Division  
of Biological Sciences*  
REVEREND FRANCIS A. BENEDETTO, S.J., PH.D., *Chairman, Physics  
Department*  
MARY HOPE MACDONALD, PH.D., *Acting Chairman, Chemistry  
Department*  
REVEREND JOHN F. KELLER, S.J., M.S., *Chairman, Mathematics  
Department*

## GRADUATE COUNCIL

- REV. JOHN F. KELLER, S.J., *Chairman*  
DR. WALTER G. MOORE  
MR. G. WALLACE LEFTWICH  
DR. ANTHONY DiMAGGIO  
DR. HILDA C. SMITH  
DR. CARL H. BRANS

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# Academic Calendar

1966

- |           |       |   |
|-----------|-------|---|
| May       | 14    | Deadline for submission of graduate applications and credentials for the summer session.  |
|           | 28    | Graduate admissions examination.  |
| June      | 11    | Registration for MBA program (8:30-12:00).  |
|           | 13-14 | Registration for summer session.  |
|           | 15    | Classes begin.  |
| July      | 28    | Three week session begins.  |
| August    | 20    | Deadline for submission of graduate applications and credentials for fall semester.   |
| September | 10    | Graduate admissions examination.  |
|           | 15    | Registration for 60-hour MBA Candidates (6:00-9:00 P.M.).   |
|           | 19    | Official opening of Fall Semester.  |
|           | 24    | Registration for graduate division.   |
|           | 26    | Graduate lectures and classes begin.  |
|           | 30    | Latest date for changes or official dropping of courses. (Grades of WP or WF will be given in those courses dropped after this date.) |
| November  | 1     | All Saints Day.   |
|           | 22    | Thanksgiving holidays begin after last class.   |
|           | 28    | Classes resumed.  |
| December  | 8     | Feast of Immaculate Conception. University holiday.   |
|           | 17    | Christmas Holidays begin after last class.  |

# 1967

- |          |       |   |
|----------|-------|---|
| January  | 1     | Deadline for submission of graduate applications and credentials for spring semester.   |
|          | 2     | Classes resumed.  |
|          | 14    | Graduate admissions examination.  |
|          | 16-26 | Final examinations.   |
|          | 26    | End of Fall semester. Registration of 60-hour MBA Candidates (6:00-9:00 P.M.).  |
|          | 28    | Registration for graduate divisions.  |
|          | 30    | Classes begin for spring semester.<br>Fee for late registration.  |
| February | 6-7   | Mardi Gras. University holidays.  |
|          | 10    | Latest date for changes or official dropping of courses. (Grades of WP or WF will be given in courses dropped after this date.) |
|          | 16    | Latest date for application for candidates for degrees conferred in June 1967. Graduation fees due.                             |
| March    | 22    | Easter holidays begin after last class.   |
|          | 28    | Classes resumed.  |
| May      | 4     | Ascension Thursday. University holiday.   |
|          | 15-19 | Senior and graduate examinations.   |
|          | 29    | Baccalaureate Mass 5:00 P.M.  |
|          | 30    | Commencement exercises 8:00 P.M.  |

## 1966 - CALENDAR - 1966

JANUARY							APRIL							JULY							OCTOBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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9	10	11	12	13	14	15	10	11	12	13	14	15	16	10	11	12	13	14	15	16	9	10	11	12	13	14	15
16	17	18	19	20	21	22	17	18	19	20	21	22	23	17	18	19	20	21	22	23	16	17	18	19	20	21	22
23	24	25	26	27	28	29	24	25	26	27	28	29	30	24	25	26	27	28	29	30	23	24	25	26	27	28	29
30	31	—	—	—	—	—	—	—	—	—	—	—	—	31	—	—	—	—	—	—	30	31	—	—	—	—	—

FEBRUARY							MAY							AUGUST							NOVEMBER							
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13	14	15	16	17	18	19	20	15	16	17	18	19	20	21	14	15	16	17	18	19	20	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	22	23	24	25	26	27	28	21	22	23	24	25	26	27	20	21	22	23	24	25	26
27	28	—	—	—	—	—	—	29	30	31	—	—	—	—	28	29	30	31	—	—	—	27	28	29	30	—	—	—
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13	14	15	16	17	18	19	20	12	13	14	15	16	17	18	11	12	13	14	15	16	17	11	12	13	14	15	16	17
20	21	22	23	24	25	26	27	19	20	21	22	23	24	25	18	19	20	21	22	23	24	18	19	20	21	22	23	24
27	28	29	30	31	—	—	—	26	27	28	29	30	—	—	25	26	27	28	29	30	—	25	26	27	28	29	30	31
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## 1967 - CALENDAR - 1967

JANUARY							APRIL							JULY							OCTOBER						
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19	20	21	22	23	24	25	21	22	23	24	25	26	27	20	21	22	23	24	25	26	19	20	21	22	23	24	25
26	27	28	---	---	---	---	28	29	30	31	---	---	---	27	28	29	30	31	---	---	26	27	28	29	30	---	---

MARCH							JUNE							SEPTEMBER							DECEMBER						
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12	13	14	15	16	17	18	11	12	13	14	15	16	17	10	11	12	13	14	15	16	10	11	12	13	14	15	16
19	20	21	22	23	24	25	18	19	20	21	22	23	24	17	18	19	20	21	22	23	17	18	19	20	21	22	23
26	27	28	29	30	31	---	25	26	27	28	29	30	---	24	25	26	27	28	29	30	24	25	26	27	28	29	30
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# Faculty

## GRADUATE DIVISION, BIOLOGICAL SCIENCES

- REV. JOHN H. MULLAHY, S.J., PH.D., *Professor of Biology; Chairman of the Department of Biological Sciences and Graduate Division.*  
A.B., St. Louis University, 1937; M.S., Fordham University, 1941;  
S.T.L., St. Louis University, 1946; Ph.D., Vanderbilt University, 1951.
- JOHN G. ARNOLD, JR., PH.D., *Professor of Biology; Chairman of the Department of Medical Technology.*  
A.B., Ohio State University, 1930; A.M., Wesleyan University, 1932;  
Ph.D., New York University, 1934.
- E. LETITIA BEARD, PH.D., *Associate Professor of Physiology.*  
B.A., Texas Christian University, 1952; B.S., *ibid.*, 1953; A.S.C.P.  
Registry, 1953; M.S., Texas Christian University, 1955; Ph.D., Tulane  
University, 1961.
- KAMEL T. KHALAF, PH.D., *Assistant Professor of Entomology*  
B.S., Baghdad University, 1945; M.S., University of Oklahoma, 1949;  
Ph.D., University of Oklahoma, 1952.
- JOHN T. MCHALE, PH.D., *Assistant Professor of Plant Physiology.*  
B.S., Iona College, 1955; Ph.D., University of Texas, 1961.
- WALTER G. MOORE, PH.D., *Professor of Comparative Anatomy and Ecology.*  
A.B., Wayne University, 1934; A.M., University of Minnesota, 1938;  
Ph.D., *ibid.*, 1940.
- JAGDISH M. UPADHYAY, PH.D., *Assistant Professor of Bacteriology.*  
B.S., Gujarat University (India), 1951; M.S., University of Michigan, 1957;  
Ph.D., Washington State University, 1963.

## GRADUATE DIVISION, COLLEGE OF BUSINESS ADMINISTRATION

- G. RALPH SMITH, PH.D., *Assistant Dean and Director of the Graduate Division of the College of Business Administration; Professor of Management.*  
B.S., Hamilton College, 1937; M.S., Syracuse University, 1940;  
Ph.D., *ibid.*, 1954.
- KARL ASHBURN, PH.D., *Professor of Economics and Finance.*  
B.A., Texas Christian University, 1926; M.B.A., *ibid.*, 1928;  
Ph.D., Duke University, 1934.
- WILLIAM P. CARR, M.B.A., *Professor of Accounting.*  
B.B.A., University of Texas, 1931; M.B.A., *ibid.*, 1934; Texas C.P.A., 1934;  
Louisiana C.P.A., 1939; F.P.C.A., 1947.
- RUDOLF COPER, PH.D., *Professor of Finance and Economics.*  
Ph.D., Friedrich Wilhelms Universitaet, Berlin, 1930.
- GEORGE FIRZLY, (PH.D. Cand., University of Utah), *Assistant Professor of Economics.*  
L.L.B., Syrian University, Damascus, 1948; B.A., Los Angeles State College,  
1953; Graduate Certificate Middle Eastern Studies, University of Utah, 1964.
- IRVING A. FOSBERG, PH.D., *Associate Professor of Marketing.*  
B.S., New York University, 1937; M.A., Columbia University, 1938;  
Ph.D., New York University, 1940.
- G. WALLACE LEFTWICH, M.B.A., *Professor of Accounting.*  
B.S., Loyola University, New Orleans, 1947; M.B.A., Tulane University,  
1950; Louisiana C.P.A., 1949.

- ARTHUR L. RAYHAWK, PH.D., *Associate Professor of Marketing*.  
A.B., Regis College, 1925; M.A., The Catholic University of America, 1927;  
Ph.D., *ibid.*, 1932.
- REV. HUBERT F. SCHIFFER, S.J., PH.D., *Professor of Economics*.  
A.B., St. Miki College, Tokyo, Japan; M.A., Fordham University, 1952;  
Ph.D., *ibid.*, 1958.
- THERESA R. SIAPIRO, PH.D., *Assistant Professor of Economics and Statistics*.  
B.A., Hunter College, 1932; M.A., Columbia University, 1933;  
Ph.D., *ibid.*, 1955.
- REV. JACQUES E. YENNI, S.J., PH.D., *Professor of Economics*.  
B.S. in Ec., Loyola University, New Orleans, 1930; M.A., St. Louis University, 1936; Ph.D., University of California, 1949.

## ADVISORY COMMITTEE TO THE GRADUATE DIVISION, COLLEGE OF BUSINESS ADMINISTRATION

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- CHARLES M. CARRIERE, *Vice-President*, Wesson Division, Hunt Foods & Industries, Inc.
- HAROLD S. DEY, *Partner*, Peat Marwick Mitchell & Co.
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- ALPHONSE C. ELMER, *Partner*, Franklin Tax Service.
- FREDERICK J. GISEVIUS, JR., *Attorney*, 719 Richards Bldg.
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- \*FRED J. LIPPS, JR., *Manager*, BOL Charge Service, Bank of Louisiana
- EDMOND G. MIRANNE, *Attorney*, 219 Carondelet Street.
- A. LOUIS READ, *Executive Vice-President & General Manager*, WDSU-TV.
- JAMES M. RUDD, *Vice-President and Personnel Manager*, D. H. Holmes Co., Ltd.
- \*JOHN F. SCREEN, *Executive Assistant Interchange Association*, WDSU-TV.
- CLEM H. SEHRT, *President*, National American Bank of New Orleans.
- ROY T. SESSUMS, *Vice-President*, Freeport Sulphur Company.
- F. WINTER TRAPOLIN, F. Winter Trapolin Insurance Agency.
- F. POCHE WAGUESPACK, JR., *President*, Waguespack Pratt, Inc.

## GRADUATE DIVISION OF EDUCATION

- REV. JOSEPH B. TREMONTI, C.S.V., ED.D., *Professor of Education, Chairman of the Department.*  
B.S., Loyola University, Chicago, 1937; M.A., Catholic University of America, 1941; Ed.D., Temple University, 1950.
- REV. ROBERT ALCIATORE, S.J., Cand., PH.D., *Instructor in Education.*  
A.B., Spring Hill College, 1954; S.T.L., St. Louis University, 1962; Cand., Ph.D., University of Minnesota, 1965.
- BROTHER CLEMENT COSGROVE, S.C., PH.D., *Assistant Professor of Education.*  
Ph.B., Loyola University, New Orleans, 1935; M.S., Fordham University, 1951; Ph.D., *ibid.*, 1955.
- REV. EDWARD A. DOYLE, S.J., PH.D., *Academic Vice-President; Professor of Education.*  
A.B., Georgetown University, 1935; S.T.L., St. Louis University, 1947; Ph.D., The Catholic University of America, 1953.
- ALVIN J. LOWE, Cand., ED.D., *Assistant Professor of Education.*  
B.A., University of Southern Mississippi, 1958;  
M.A., *ibid.*, 1959; D.A.G.S., University of Virginia, 1962;  
Cand., Ed.D., *ibid.*
- MALCOLM F. ROSENBERG, JR., PH.D., *Lecturer in Education.*  
B.A., Tulane University, 1940; M.A., Tulane University, 1948;  
Ph.D., Louisiana State University, 1963.
- HILDA CHIARULLI SMITH, PH.D., *Associate Professor of Education.*  
B.S., Syracuse University, 1941; M.A., *ibid.*, 1947; Ph.D., *ibid.*, 1955.
- EDWIN F. STUMPF, ED.D., *Lecturer in Education.*  
B.A., Tulane University, 1939; M.Ed., Louisiana State University, 1954;  
Ed.D., Harvard, 1954.
- BLANCHE PHYLLIS ZINK, PH.D., *Instructor of Education.*  
B.A., Southern Methodist University, 1948; M.A., *ibid.*, 1949;  
Ph.D., University of Texas, 1965.

## FACULTY OF THE DEPARTMENT OF CHEMISTRY

- MARY HOPE MACDONALD, PH.D., *Associate Professor of Chemistry; Acting Chairman.*  
B.S., University of Denver, 1947; M.S., *ibid.*, 1951;  
Ph.D., The Johns Hopkins University, 1955.
- WINSTON R. DEMONSABERT, PH.D., *Professor of Chemistry.*  
B.S., Loyola University, New Orleans, 1937; A.M., Tulane University, 1945; Ph.D., *ibid.*, 1952.
- ANTHONY DIMAGGIO, III, PH.D., *Associate Professor of Biochemistry.*  
B.S., Loyola University, New Orleans, 1956; Ph.D., Louisiana State University, 1961.
- WILLIAM E. FRANKLIN, PH.D., *Associate Professor of Chemistry.*  
B.S., University of Nebraska, 1953; M.S., *ibid.*, 1955;  
Ph.D., State University of Iowa, 1959.
- REV. HOMER R. JOLLEY, S.J., PH.D., *Vice President for Development; Professor of Chemistry.*  
A.B., Gonzaga University, 1938; A.M., *ibid.*, 1939; M.S., Fordham University, 1941; S.T.L., St. Louis University, 1946; Ph.D., Princeton University, 1951.
- ROBERT C. PETTERSON, PH.D., *Associate Research Professor of Chemistry.*  
B.S., University of Maine, 1947; Ph.D., University of Southern California, 1957.
- MARIO RODRIGUEZ, D.M.D., PH.D., *Assistant Professor of Biochemistry.*  
B.S., University of Philippines, 1954; D.M.D., *ibid.*, 1958;  
M.S., Georgetown University, 1960; Ph.D., *ibid.*, 1963.

## FACULTY OF THE DEPARTMENT OF MATHEMATICS

- REV. JOHN F. KELLER, S.J., M.S., *Associate Professor of Mathematics; Chairman of the Department.*  
B.S., Spring Hill College, 1941; M.S., St. Louis University, 1945.
- REV. LAWRENCE CONLON, S.J., PH.D., *Assistant Professor of Mathematics.*  
B.S., Spring Hill College, 1958; Ph.D., Harvard, 1963.
- LEWIS J. TODD, A.M., *Associate Professor of Mathematics.*  
B.S., Loyola University, New Orleans, 1933; A.M., Tulane University, 1942.
- REV. BERNARD A. TONNAR, S.J., M.A., *Associate Professor of Mathematics.*  
A.B., St. Louis University, 1937; A.M., The Catholic University of America, 1940; S.T.L., St. Louis University, 1946.
- REV. ANDREW P. WHITMAN, S.J., PH.D., *Assistant Professor of Mathematics.*  
B.S., Tulane University, 1945; Ph.D., Catholic University, 1961.
- RAY H. WITHAM, B.A., *Assistant Professor of Mathematics.*  
B.A., Illinois College, 1945.

## FACULTY OF THE DEPARTMENT OF PHYSICS

- REV. FRANCIS A. BENEDETTO, S.J., PH.D., *Professor of Physics; Chairman of the Department.*  
A.B., St. Louis University, 1936; M.S., Fordham University, 1940; Ph.D., *ibid.*, 1946.
- CARL H. BRANS, PH.D., *Assistant Professor of Physics.*  
B.S., Loyola University, New Orleans, 1957; Ph.D., Princeton University, 1961.
- REV. JAMES C. CARTER, S.J., PH.D., *Assistant Professor of Physics.*  
B.S., Spring Hill College, 1952; M.S., Fordham University, 1953; Ph.D., The Catholic University of America, 1956; S.T.L., Woodstock College, 1959.
- HENRY A. GARON, M.S., *Assistant Professor of Physics.*  
B.S., Loyola University, New Orleans, 1947; M.S., University of Notre Dame, 1950.
- DAVID G. KEIFFER, PH.D., *Associate Professor of Physics.*  
B.S., Loyola University, New Orleans, 1952; M.S., University of Notre Dame, 1953; Ph.D., *ibid.*, 1956.
- REV. KARL A. MARING, S.J., PH.D., *Professor of Physics.*  
A.B., Woodstock College, 1915; A.M., *ibid.*, 1916; Ph.D., St. Louis University, 1932.
- LAWRENCE J. STROHMMEYER, M.S., *Associate Professor of Physics.*  
B.S., Loyola University, New Orleans, 1938; M.S., New York University, 1940.

# The University

The Jesuits arrived in New Orleans in 1847 for the purpose of establishing a college of liberal arts and sciences. A college preparatory academy and the College of the Immaculate Conception were established on February 1, 1849 at the corner of Baronne and Common Streets. In 1904 an Academy and College were opened on St. Charles Avenue opposite Audubon Park, and the two associated institutions were known as Loyola College. In 1911 the College of the Immaculate Conception was united with Loyola College on the present Loyola Campus. At the same time, the Loyola Academy and the Academy of the Immaculate Conception were united at the Baronne Street location, to become the present Jesuit High School.

At the request of His Excellency, Most Reverend James J. Blenk, Archbishop of New Orleans, Loyola College was expanded to become Loyola University in the fall of 1911. Loyola University was duly incorporated by the General Assembly of Louisiana and empowered to grant all university degrees in 1912.

Although courses at the graduate level had been offered since 1886, the Board of Directors of the University suspended all graduate work in 1937. As the result of the work of a University Committee appointed by the President in September, 1949, to study the need of offering graduate work, the Department of Education was expanded to offer work at the graduate level for teachers, leading to a degree of Master of Education.

In subsequent years the Board of Directors of the University authorized the Department of Biological Sciences to offer graduate work leading to a Master of Science Degree in Biological Sciences, the Departments of Chemistry, Mathematics, and Physics to offer graduate courses leading to Master of Science Degree in Teaching, and the College of Business Administration to offer a Master of Business Administration Degree.

## JESUIT HIGHER EDUCATION

Loyola University is conducted by members of the Society of Jesus and is a member of the Jesuit Educational Association. In common with all other Catholic educational institutions, it has as its final aim the formation of the true and perfect Christian described by Pope Pius XI in his *Encyclical on the Christian Education of Youth*:

The true Christian, product of Christian education, is the supernatural man who thinks, judges, and acts constantly and consistently in accordance with right reason, illumined by the supernatural light of the example and teachings of Christ; in other words, to use the current term, the true and finished man of character.

The liberal arts college of Loyola University is conducted to promote the spiritual, intellectual, moral, and aesthetic advancement of its students.

A liberal education at Loyola University endeavors to produce the mature development of the student through a carefully integrated liberal arts curriculum. This curriculum includes a liberalized introduction to a special area of learning selected by the student. In this way, adequate provision is made for a student's advancement into scholarly or professional studies.

The curriculum is designed to develop habits of clear, logical, and accurate thinking through such courses as logic, mathematics, and the natural sciences; the ability for clear and forceful self-expression through such courses as composition, language, and public speaking; a knowledge of human nature through courses in literature; a knowledge of the past through courses in history; a knowledge of the present, a contemporary social awareness, and an attitude of social and civic responsibility through courses in social sciences and modern history; a clear knowledge and appreciation of ultimate religious, philosophical, and moral values through courses in theology and philosophy which, at Loyola University, are especially emphasized.

## COMPUTER CENTER

The University operates an IBM electronic computer center located in Stallings Hall. Highspeed data processing equipment totaling \$300,000 is housed in the center. The computer is exclusively used for undergraduate and graduate students in educational and research projects.

## LIBRARY

The air-conditioned Loyola library houses approximately 200,000 volumes and maintains subscriptions to more than 1,500 journals and other periodicals published throughout the world. Graduate students are granted access to the stacks.

## BOOKSTORE

The bookstore, located in the new Danna Student Center, is one of the largest in the city. It offers for sale all required textbooks and a wide variety of hardcover and paperback books of general and specialized interest.

## TUITION LOANS

The University participates in the National Defense Student Loan Program. Fulltime graduate students may borrow up to \$1000 per year. Interest is 3% per year. Students are given 10 years in which to repay. Interest and payments do not begin until the student is graduated or stops his college program. For students who subsequently teach, 10% of the loan is written off for each year taught in a public school up to five years.

## HONORARY FRATERNITIES AND ORGANIZATIONS

In order to give recognition and encouragement to high standards of scholarship among the students, honorary scholastic fraternities and organizations have been established on the campus.

## BETA ALPHA PSI

The purposes of this national, professional and honorary fraternity are: to stimulate interest and cooperation in accounting; to encourage and foster the ideal of service as the basis of the accounting profession; to promote the study of

accountancy and its highest ethical standards; to act as a medium between professional men, instructors, students and others who are interested in the development of the study or profession of accountancy; to develop high moral, scholastic and professional attainments in its members; and to encourage cordial intercourse among its members and the professional generally. Accounting majors of junior standing with a 3.00 quality point average in four completed accounting courses and a 2.50 average in all other subjects shall be considered for election to membership. Graduate students who achieve high scholastic standing are also eligible.

#### BETA GAMMA SIGMA

The purposes of this national honor society are: to encourage and reward scholarship and accomplishment among the students of business administration; to promote the advancement of education in the art and science of business and to foster integrity in the conduct of business operation. Only seniors who rank in the upper tenth of their graduating class and juniors among the highest four percent of their class are considered for election to membership. Graduate students who achieve high scholastic standing are also eligible.

#### TRI BETA

The Eta Lambda chapter of Tri Beta, national honor biology Society, was established at Loyola on March 24, 1956. It unites biology, pre-medical, pre-pharmacy, pre-dental and medical technology students into a single group who possess a common interest in biology. Its purpose is to instill in its members a desire for scientific knowledge, research and truth.

#### KAPPA DELTA PI

Kappa Delta Pi is an honor society in education. Here at Loyola, Zeta Rho Chapter, which was established on October 8, 1949, taps those undergraduates who achieve a quality point average of 3.3 and graduate students who earn a quality point average of 3.5. Kappa Delta Pi has as its journal, THE EDUCATIONAL FORUM, which is one of the leading scholarly journals in education. Kappa Delta Pi's main objective is "to encourage high professional, intellectual and personal standards and to recognize outstanding contributions to education."



# The Graduate Division of Biological Sciences

Rev. John H. Mullahy, S. J., Ph.D., *Chairman*

## PURPOSE

The graduate program in the Biological Sciences is designed to provide a broad training for those who aspire to be teachers and for those who wish to improve their biological background by additional subject matter. The studies in this program provide an excellent preparation for advanced research and doctorate work. The program provides facilities for advanced courses in each of the three branches of the Department of Biological Sciences. At the present time the program leads to the Master of Science degree in Biological Sciences.

## ADMISSION

Any student who has a Bachelor's degree from a recognized college and has undergraduate training in general biology, general bacteriology, and organic chemistry may qualify for the Master of Science degree in Biological Sciences.

Applications for admission must be filed with the Graduate School one month before the beginning of the session when the student plans to begin graduate work. The applicant for admission must write to the Registrar of each college previously attended and request an official transcript *in duplicate* of all undergraduate and graduate work. The transcript must be sent directly by the college to the Graduate School, Loyola University, New Orleans, Louisiana 70118. If the applicant for admission attended Loyola University as an undergraduate student, received his degree from Loyola University, and attended no other college or university after he received this degree no additional transcripts of work are required. Applicants who have not already taken the Graduate Record Examination are urged to do so and to have the results sent to the Graduate School.

The Application for Admission and the transcripts of previous work are reviewed by the Executive Committee of the De-

partment of Biological Sciences and the applicant is then notified of its action by the Graduate School.

For the first twelve hours of graduate work all students are accepted only on a provisional basis. Upon the satisfactory completion of this work (i.e. with a "B" average) the student becomes a classified graduate student. The Executive Committee of the Department of Biological Sciences has the final right to admit students to this category.

Candidates must demonstrate, by written examination if necessary, that they have a reading knowledge of at least one modern foreign language. In all cases the Executive Committee of the Department of Biological Sciences will determine this necessity.

Properly qualified candidates for the degree of Master of Education may elect a maximum of 10 semester hours of graduate work in the Biological Sciences as part of their degree requirements.

In rare instances the Executive Committee of the Department of Biological Sciences may accept up to six semester hours of graduate credit from other recognized institutions.

#### BIOLOGY FOR TEACHERS

Elementary and secondary school teachers who have completed one or more undergraduate courses in Biology may elect Bl. 432 and Bl. 433 for graduate credit.

#### RESIDENCE

Requirements are the same as those in the Graduate School of Education.

#### COURSE REQUIREMENTS

All students in the Division of Biological Sciences are obliged to take the Graduate Record Examination before the end of the *first semester* of graduate work if they have not already done so.

The Master of Science degree in Biological Sciences requires twenty-four hours of course work and a thesis. A total point-hour ratio of 3.00 is required for course work. This ratio is computed on the basis of four quality points for an "A", three quality points for a "B", and two quality points for a "C". No quality points are given for the mark of "F".

Along with the course requirements noted above, the candidate must present an acceptable thesis based at least partially on original research. This thesis must be completed and accepted by the Executive Committee of the Department one month before the date of graduation.

#### LIMIT OF TIME

Work completed more than six years before the date on which the Master's degree is to be conferred will not be accepted in fulfillment of requirements for the degree.

#### FEES

Fees for full-time students (8-12 hours) \$225.00; for part-time students, fees are the same as those for the College of Arts and Sciences.

The tuition fee for all part time courses is \$20.00 per semester hour, except for accredited teachers and members of a religious community.

For accredited teachers who are at present engaged in teaching, the tuition fee is \$15.00 per semester hour. The teacher's certificate accompanied by a statement of present employment should be presented to the Registrar for inspection at the time of registration.

For students who are members of a religious community, the charges are \$10.00 per semester hour.

A non-refundable application fee of \$10.00 payable to Loyola University must accompany an application for admission to the program.

A registration fee of \$5.00, a library fee of \$5.00 and a laboratory fee of \$10.00 per semester for each course having laboratory periods are charged each semester.

#### COURSES FOR QUALIFIED SENIORS AND GRADUATE STUDENTS

##### *Course Offerings — 1966-1967*

Fall: Bl. 403, 409, 411, 413, 415, 417, 420, 444, 453, 501, 503, 507, 511, 515  
Spring: Bl. 406, 408, 410, 416, 418, 423, 426, 428, 430, 445, 502, 504, 506, 508, 512, 516

##### *Bl. 403—Cytology*

A study of the morphological, physiological, and biochemical properties of component parts of animal and plant cells. Prerequisite: General Biology. 4 sem. hrs.

**Bl. 404—Phycology**

A survey of the algae including both marine and freshwater forms. Prerequisite: General Botany. 4 sem. hrs.

**Bl. 406—Taxonomy of Flowering Plants**

History of botanical systematics along with collection, identification and preparation of herbarium specimens of angiosperms common in the New Orleans area. Prerequisite: General Botany. 4 sem. hrs.

**Bl. 407—Limnology**

A study of the physical, chemical, and biological factors determining biological productivity in inland waters. Field study of local lakes and streams gives the student experience in the use of methods and instruments for environmental analysis. Two lectures and six hours of laboratory or field work per week. Prerequisite: General Biology. 4 sem. hrs.

**Bl. 408—Entomology**

The taxonomy, life histories and general ecological relationships of the insects in general and especially of South Louisiana. Two hours lecture and four hours of laboratory or field work per week. Prerequisite: General Biology. 4 sem. hrs.

**Bl. 409—Animal Ecology**

The relationships of animals to each other, to plants, and to the physical and chemical factors of the environment. Two lectures and six hours of laboratory or field work per week. Prerequisite: General Biology. 4 sem. hrs.

**Bl. 410—Field Zoology**

The taxonomy, life histories and general ecological relationships of the common animals (exclusive of the terrestrial insects, the birds, and the mammals) of South Louisiana and the New Orleans area particularly. Two hours lecture and six hours laboratory or field work per week. Prerequisite: General Biology. 4 sem. hrs.

**Bl. 411—General Parasitology**

A study of parasites in relation to disease. The various types of parasites, their life histories, and the conditions which they cause will be considered. Prerequisite: General Biology. 4 sem. hrs.

**Bl. 412—Physiology of the Bacteria**

Lectures, assigned reading, discussion and laboratory exercises dealing with the chemistry and physiology of microbial cells. Prerequisite: Bl. 301 and bio-chemistry. 4 sem. hrs.

**Bl. 413—Advanced Genetics**

Lectures, assigned reading, discussions and laboratory dealing with the molecular, organismic and population aspects of modern genetics. Prerequisite: Bl. 312 or its equivalent. 4 sem. hrs.

**Bl. 415-16—Advanced General Physiology**

The physiology and biochemistry of cells and the comparative physiology of muscular, nervous and circulatory systems. Bio-electric activities, metabolic cycles, and internal secretions will be covered. Prerequisite: Bl. 303. 8 sem. hrs.

***Bl. 417—Endocrinology***

General consideration of the organs of internal secretion. Phylogeny, embryology, microscopic anatomy and physiology. 4 sem. hrs.

***Bl. 418—Advanced Endocrinology***

Recent advances in the biology of the organs of internal secretion. Lectures, conferences and laboratory work. 4 sem. hrs.

***Bl. 420—Plant Anatomy***

A consideration of the structure and development of seed plants (Primarily Angiosperms). Reference will be made to the relationships of anatomy and developmental patterns to the physiology and morphogenesis of the organism. The Plant Anatomy seminar will constitute a portion of this course. Prerequisite: General Botany. 4 sem. hrs.

***Bl. 422—General Virology***

The virus as a biological entity; physical and chemical properties of virus particles; representative animal, plant and bacterial viruses are considered. The rickettsiae are briefly treated. Prerequisite: Bacteriology and Organic Chemistry. 4 sem. hrs.

***Bl. 423—Mycology***

A survey of the fungi with emphasis on form and structure. Prerequisite: Bl. 301. 4 sem. hrs.

***Bl. 424—Techniques in Bacteriology***

Consideration and application of current techniques used in bacterial physiology. Qualitative and quantitative determination of metabolites are examined as are methods for studying mutants, respiration, and enzymes. Prerequisites: Bl. 301 and biochemistry. 4 sem. hrs.

***Bl. 426—Comparative Physiology***

A comparative study of the functioning of lower animals, covering such topics as water balance, sensory, and endocrine mechanisms. Prerequisites: General Biology, Organic Chemistry and permission of Professor. 4 sem. hrs.

***Bl. 427—Physiology of the Fungi***

A study of the chemical activities of fungi as related to their nutrition growth, reproduction and fermentative ability. Emphasis will be placed on fungi important in industry and agriculture. 4 sem. hrs.

***Bl. 428—Plant Physiology.***

Higher plants will be the principal object of study, with regard to their growth processes, water relations, and photosynthetic activities. The laboratory will illustrate modern techniques of investigation as well as the principles of the discipline involved. A weekly meeting devoted to a discussion of contemporary literature will be a part of the course. Prerequisite: General Biology and Organic Chemistry. 4 sem. hrs.

***Bl. 429—Medical Entomology.***

A study of the arthropod groups of medical importance; their identification, general biology and life cycles; factors affecting man and domestic animals and control measures. Prerequisite: General Entomology. 4 sem. hrs.

***Bl. 430—Neurophysiology***

Emphasis will be placed on Bio-electrical potentials and the physiology of sensory end-organs. Lab work will emphasize electrophysiological methods. Prerequisite: Permission of Professor. 4 sem. hrs.

***Bl. 432—Botany for Teachers***

A teacher training and review course for those engaged in, or preparing for, teaching high school biology. Emphasis is placed on the collection and preparation of local botanical materials for classroom use. Limited to graduate students in education. Prerequisite: General Botany. 4 sem. hrs.

***Bl. 433—Zoology for Teachers***

A teacher-training and review course for those engaged in, or preparing for, teaching high school biology. Emphasis is placed on the collection and preparation of local zoological materials for classroom use. Limited to graduate students in education. Prerequisite: General Zoology. 4 sem. hrs.

***Bl. 444-445—Graduate Seminar***

Prerequisite—advanced standing. 2 sem. hrs.

***Bl. 453—Radiation Biology***

A survey of the nature, measurement, and effect of ionizing radiations in biological systems. Designed to acquaint the beginner with theory and methods of use of radiation as a research tool. Geiger counter techniques will be used primarily; absorption and half-life experiments, tracer methods, biological uptake and distribution, isotope dilutions and similar topics will be covered in lectures and in laboratory. Prerequisite: Discretion of professor in charge of the course. 4 sem. hrs.

***Bl. 501-502—Research in Bacteriology*** 4 sem. hrs.

***Bl. 503-504—Research in Cytology*** 4 sem. hrs.

***Bl. 505-506—Research in Plant Anatomy*** 4 sem. hrs.

***Bl. 507-508—Research in Animal Ecology*** 4 sem. hrs.

***Bl. 511-512—Research in Parasitology*** 4 sem. hrs.

***Bl. 515-516—Research in Physiology*** 4 sem. hrs.

***Bl. 521-522—Research in Virology*** 4 sem. hrs.

***Bl. 529-530—Research in Entomology*** 4 sem. hrs.

# The Graduate Division of the College of Business Administration

G. Ralph Smith, Ph.D.—*Director*

## PURPOSES

The Master in Business Administration program is addressed to the education of qualified students in order that they may assume increased responsibilities and may initiate well predicated research into business processes.

Graduates of the program will be prepared to direct and develop enterprises whose objectives and accomplishments are consonant with the ideals and increasing complexity of Western Culture.

It is intended also to prepare individuals to become teachers at colleges and universities whose curricula are designed to develop leaders with an appreciation of the functions and role of business in maintaining a free enterprise society.

The program is also of sufficient breadth and depth to provide a foundation for persons seeking more advanced degrees.

## ADMISSION

Admission to the M.B.A. program is predicated upon these requirements. The candidate must possess a baccalaureate degree from a recognized institution, an undergraduate academic record of "B" or better, and personal qualifications of sound character and intellectual attainment.

Additionally, the candidate must achieve a satisfactory score on either the Miller Analogies Test or the Admission Test for Graduate Study in Business.

Application forms may be secured from the Graduate School, Loyola University, New Orleans, Louisiana 70118. They must be accomplished in duplicate and returned directly to the Graduate School.

The applicant must request from the Registrar of each institution previously attended an official transcript *in duplicate* of all undergraduate, and where applicable, all graduate courses. These transcripts are to be sent directly to the Graduate School of Loyola University.

If the applicant graduated from Loyola University and attended no other college or university either before or after graduation, no additional transcripts are required.

The Graduate Studies Committee reviews the applicant's collegiate record, class standing, and evidences of serious intent and past accomplishments.

If its findings are favorable, the applicant is directed to either take the Miller Analogies Test or have the Educational Testing Service transmit to the Director of the Graduate Division his score on the Admission Test for Graduate Study in Business.

The Committee's findings noted above plus the score achieved on either test determine whether or not the applicant is admitted.

An applicant with less than a "B" average in undergraduate work who achieves a superior score on either of the qualifying examinations may be admitted provisionally at the discretion of the Graduate Studies Committee. Conditional admission for any other reason is also at the discretion of the Graduate Studies Committee.

#### RESIDENCE

Loyola University confers a degree only on those persons who have completed an entire academic year of satisfactory work under the guidance of the University. The student must take all his graduate courses at Loyola University.

In certain instances the Graduate Studies Committee may be petitioned to accept a maximum of six semester hours of graduate work satisfactorily accomplished at another recognized college or university. Acceptance of advanced standing will be determined exclusively by the Graduate Studies Committee.

The status as a full-time student is determined by the Director. It will reflect whether the candidate is registered in the core curriculum courses or courses open only to graduate students. Regardless of the type of course enrollment all candidates are considered as graduate students.

Part-time students will ordinarily be limited to a maximum of six graduate hours during any one semester. Part-time candidates completing core requirements may exceed this semester hour limitation with the approval of the Director.



### ATTENDANCE

If the professor of any graduate level course believes a candidate's record of attendance is such as to jeopardize the satisfactory completion of the course, the Director will notify the candidate in writing of this professorial belief.

Continued unexplained, unsatisfactory attendance will cause the Graduate Studies Committee to review the candidate's standing in the program.

### LIMIT OF TIME

Requirements for the degree must be met within four years from the date the candidate first registers for a course numbered 500 or over. If circumstances preclude accomplishment of the requirements within the prescribed period, the candidate may petition the Graduate Studies Committee for permission to continue his work. No more than two petitions will be accepted.

### CURRICULUM

The curriculum is designed to provide for possessors of baccalaureate degrees in business and in arts, sciences, and engineering.

Candidates holding degrees in business usually may enter directly into a thirty hour program of graduate work.

All other candidates are required to complete up to thirty hours of study in economics, accounting, finance, statistics, business law, marketing, and management. These courses constitute the core curriculum.

Appropriate credit will be granted for satisfactory work in these areas taken by candidates in any recognized baccalaureate degree program.

All candidates during the final thirty hours of work are required to complete twelve semester hours of the following courses:

- B.A. 500 Elements of Behavioral Sciences
- Eco. 500 National Income and Employment Analysis
- Eco. 501 Studies in Business Cycle Theories
- Mg. 502 Managerial Economics

The remaining eighteen hours may be selected from the courses which will provide professional competence in the area of a student's major interest. The functional fields are in accounting, economics, finance, management, and marketing. Each candidate will select courses from no less than two of the functional fields.

Candidates may also select courses from those in the Business Administration series numbered 500 or above.

The requisite number of course hours in the selected functional fields with any other electives is determined by the student only with the advice and consent of his advisor. No other program determination is acceptable.

### COURSE REQUIREMENTS

The candidate must achieve a "B" (3.0) average by the end of twelve semester hours of graduate level courses. This average must be maintained during the remainder of the program.

The Director will withdraw the candidacy of any student who has not achieved a "B" (3.0) average at the conclusion of the first twelve hours of graduate level courses. Additionally, any candidate whose average at the conclusion of the first six hours of graduate level courses indicates a satisfactory average cannot be achieved by the twelve hour limit will be denied further registration in the program.

Candidates completing core requirements preparing for entrance into graduate courses must meet the academic standards of the College of Business Administration. Courses numbered 500 or over are reserved exclusively for graduate students.

### COMPREHENSIVE EXAMINATION

A comprehensive written examination covering the required and selected functional fields shall be passed by the candidate at the conclusion of the course work. Comprehensive examinations are scheduled regularly in May, July and December.

A candidate who is registered, at the time the examination is scheduled, for *no more* than his final six hours of course work may request permission to take the examination at one of the above times. Permission to take the examination at times other than those regularly scheduled must be sought through a petition submitted to the Graduate Studies Committee. The acceptance of the petition is reserved to this Committee solely. An oral examination may be required also at the discretion of the Graduate Studies Committee.

Application for this examination is to be filed with the Director within four weeks after the beginning of the semester in which the degree is sought.

If the degree is deferred pending another examination, an interval of one semester, not including a summer session, must elapse before another comprehensive examination may be taken.

The second examination for the Master's degree is final. A petition for a third examination will not be entertained.

### TUITION AND FEES

Tuition for both full- and part-time students enrolled in courses numbered 500 or over is \$80.00 per three credit hour course. Tuition for a full-time candidate completing the core curriculum requirements is computed at the rate of \$25.00 per credit hour. This tuition applies to the 400 series courses also. They are considered part of the core curriculum.

Tuition for a part-time candidate completing core curriculum requirements is \$25.00 per credit hour in the College of Business Administration and \$18.00 per credit hour in the Evening Division.

A matriculation fee of \$5.00 is charged the first time a candidate is enrolled unless he has previously enrolled in a degree program of any school or division of Loyola University.

A registration fee of \$5.00 and a library fee of \$5.00 are charged each semester the candidate is enrolled.

A non-refundable application fee of \$10.00 payable to Loyola University must accompany an application for admission to the program.

### PETITIONS

All student communications to the Graduate Studies Committee should be prepared in consultation with the Director, on the appropriate petition form available from his office.

The petition should be used for seeking the waiver of any requirement of the Graduate Program or requesting review by the Graduate Studies Committee of any action taken by it relative to the petitioner.

### GRADES

The grading scale used is A, B, C, F (failure), I (incomplete), and W(withdrawn). Grade point averages are computed on a four point scale: A=4 points; B=3 points; C=2 points.

Students who for valid and pertinent reasons cannot meet

all the requirements for the satisfactory completion of a course during its scheduled period of instruction must arrange with the instructor to receive a grade of incomplete (I) for the course. Failure to make this arrangement will result in a grade of failure (F) for the course.

Grades of incomplete which are not removed within one year from the date on which the course began are automatically converted to failure (F) on the student's record.

Official grade reports are issued by the Registrar of the University. Official transcripts of courses and credits may be obtained from the Registrar. One transcript is provided to the student at no cost. Each additional copy costs \$2.00, except that if more than five are requested at any one time the charge for the third and subsequent copies is \$0.50 each.

#### CLASS MEETINGS

Classes in the 400 and 500 series meet for one session of two and one half hours duration each week. The instructor has the privilege of lengthening this period if he deems it necessary. Additional sessions may be required at his discretion.

Classes numbered 300 or lower meet as prescribed by the Dean of the College of Business Administration or the Director of the Evening Division.

#### AUDITING OF COURSES

Any person desiring to audit a graduate level course is charged the regular tuition. Permission must be secured from the Director.

Persons desiring to audit a core curriculum course are charged on the same basis as part-time students of the College of Business Administration. Permission of the Dean of the College of Business Administration is required.

#### WITHDRAWAL

A candidate wishing to withdraw must comply with the procedures as established by the College of Business Administration.

Withdrawal is initiated with the Director. Tuition refunds are at the discretion of the Treasurer of Loyola University. No refunds will be granted after the first three weeks of the semester have passed.

**COURSES OF INSTRUCTION****BUSINESS ADMINISTRATION*****B.A. 500—Elements of Behavioral Sciences***

A systematic study is made of the fundamental concepts and principals of sociology, psychology, and anthropology as they contribute to the understanding of business activities. 3 sem. hrs.

***B.A. 502—Statistical Surveys***

The course is designed to familiarize the student through reading and experience with the methods and procedures of statistical surveys. The design and administration (surveys, sampling, the construction of schedules and questionnaires, interviewing, editing, coding, tabulation and evaluation of the data) are considered in detail. 3 sem. hrs.

***B.A. 504—Quantitative Decision Methods***

The course surveys quantitative methods useful in decision making for managers. Linear programming, probability theory, queuing theory, game theory, and symbolic logic are included. 3 sem. hrs.

***B.A. 506—Econometrics***

The intent of this course is to introduce the student to some of the basic methods, principles, and problems involved in modern econometric research. 3 sem. hrs.

***B.A. 512—Business Ethics***

Businessmen are faced with many decisions that involve ethical judgments: fair pricing, gifts, "payola", bribes, call girls, advertising, credit practices, industrial relations, codes of ethics, etc. This course offers case studies of modern business decisions and their social consequences. 3 sem. hrs.

**ACCOUNTING*****Acc. 500—Contemporary Accounting Theory and Problems I***

An analysis and evaluation is undertaken of currently acceptable accounting standards and conventions with emphasis placed upon pronouncements of authoritative groups. Contemporary problems are related to the application of these standards and conventions. 3 sem. hrs.

***Acc. 501—Contemporary Accounting Theory and Problems II***

Standards and techniques underlying the preparation of consolidated financial and operating statements are studied. Contemporary problems relating to consolidations are included. 3 sem. hrs.

***Acc. 502—Advanced Auditing***

Auditing techniques and procedures in relation to contemporary problems and acceptable auditing standards are studied. 3 sem. hrs.

*Acc. 508—Advanced Cost Accounting*

An interpretation and evaluation of concepts of production and distribution costs are studied for managerial control purposes.

3 sem. hrs.

*Acc. 510—Research in Taxation*

The methodology of research in Federal income taxation is examined. Emphasis is placed on applied research to tax problems. The intent is to develop research techniques and the ability to reach conclusions and to make recommendations predicated upon a synthesis of code, regulations, and court decisions.

3 sem. hrs.

*Acc. 520—Seminar in Accounting*

Selected problems and topics in accounting are examined. Permission of the graduate faculty in accounting is a prerequisite.

3 sem. hrs.

*Acc. 522—Tutorial in Accounting*

Individual reading and research in a selected area is conducted under the direction of a member of the graduate accounting faculty. Permission of the individual faculty member is a prerequisite.

3 sem. hrs.

## ECONOMICS

*Eco. 500—National Income and Employment Analysis*

The course treats systematically the concepts and methods used in national income accounting and reviews theories relevant to national product and income stability.

3 sem. hrs.

*Eco. 501—Studies in Business Cycle Theories*

The contributions of leading economists to theories of the business cycle are examined.

3 sem. hrs.

*Eco. 502—The Structure of Industry*

The institutional and market structures and activities of the principal industries of the United States are studied.

3 sem. hrs.

*Eco. 504—Wage Theory and Practice*

The course covers the wage theories of Ricardo, Mill, and Marx, productivity theories, wage structures, long-run trends in real wages, and the problems of a general wage theory.

3 sem. hrs.

*Eco. 506—Social Security*

The course is concerned with institutional and economic aspects of social security programs in the United States and selected foreign countries.

3 sem. hrs.

*Eco. 508—Advanced Studies in the History of Economic Thought*

The principal theoretical analysis and policy recommendations of prominent economists from the Mercantilists to the present are studied.

3 sem. hrs.

*Eco. 512—Theory of Economic Development*

General theories of economic development, from classic to Keynesian, are explored to serve as a basis for comparison and discussion of the present partial theories of underdevelopment.

3 sem. hrs.

*Eco. 513—Economic Development in Underdeveloped Countries*

The course consists principally of case studies selected to illuminate the diversity of problems defying theoretical generalization.

3 sem. hrs.

*Eco. 515—Advanced Price Theory*

A rigorous analysis of the various market structures and the pricing process for commodities and for productive services as taking place within these market forms. A systematic study of the conventional "tools" of the theory of price is included, and also some consideration given to possible divergences between practice and theory in the pricing process. 3 sem. hrs.

*Eco. 520—Seminar in Economics*

Selected problems and topics in economics are examined. Permission of the graduate faculty in economics is a prerequisite. 3 sem. hrs.

*Eco. 522—Tutorial in Economics*

Individual reading and research in a selected area is conducted under the direction of a member of the graduate economics faculty. Permission of the individual faculty member is a prerequisite. 3 sem. hrs.

## FINANCE

*Fn. 500—Problems in Money, Banking and Prices*

This course is designed to deal with the organization, functioning, and problems of the present day money and banking system of the United States with particular attention given to the Federal Reserve System. 3 sem. hrs.

*Fn. 502—Monetary and Fiscal Problems*

A study is made of monetary and fiscal theories and problems in a modern industrial economy; of the role of Central banking; of theories of interest and the rate of interest and of the impact of monetary and fiscal operations on the general economy. Study is directed mainly to domestic facets but international aspects are also considered. 3 sem. hrs.

*Fn. 506—Financial Management*

The principles of finance are used as the basis for the development of techniques useful in the area of financial management. The vehicle for the accomplishment of this objective is a series of actual and simulated cases involving analysis and decision making by the student. 3 sem. hrs.

*Fn. 510—International Finance*

Foreign exchange and investment problems are studied intensively. 3 sem. hrs.

*Fn. 520—Seminar in Finance*

Selected problems and topics in management are examined. Permission of the graduate faculty in finance is a prerequisite. 3 sem. hrs.

*Fn. 522—Tutorial in Finance*

Individual reading and research in a selected area is conducted under the direction of a member of the graduate management faculty. Permission of the individual faculty member is a prerequisite. 3 sem. hrs.

## MANAGEMENT

*Mg. 500—History of Management Thought*

The writings of Owen, Fayel, Follett, Taylor, Sheldon, and other leaders in management thought are studied. 3 sem. hrs.

*Mg. 502—Managerial Economics*

Economic theory, both qualitative and quantitative, in context with business practices is presented with the intent of demonstrating its value in decision making and forward planning. 3 sem. hrs.

*Mg. 508—Data Processing Principles, Methods and Controls*

The course is designed to acquaint the student with modern data processing principles, methods, and controls. The student is introduced to actual machine programming and operations in order that he may evaluate types of equipment of solving data processing problems. Accounting control and auditing techniques and problems are discussed. Specific case problems are programmed. 3 sem. hrs.

*Mg. 520—Seminar in Management*

Selected problems and topics in management are examined. Permission of the graduate faculty in management is a prerequisite.

3 sem. hrs.

*Mg. 522—Tutorial in Management*

Individual reading and research in a selected area is conducted under the direction of a member of the graduate management faculty. Permission of the individual faculty member is a prerequisite.

3 sem. hrs.

## MARKETING

*Mk. 500—Advanced Marketing Management I*

An intensive study, analysis and interpretation of management decisions: includes both those which directly control marketing operations, and those which are affected by or dependent upon marketing operations. Marketing concepts pervade and orient the study. 3 sem. hrs.

*Mk. 501—Advanced Marketing Management II*

Exploration and study of actual and potential applications of mathematical models and related techniques and disciplines in marketing management decision making. College algebra and business statistics are prerequisites.

3 sem. hrs.

*Mk. 502—Marketing Problems*

Current marketing situations are studied and appraised. The application of evolving marketing concepts in solving the problems thus exposed is intensive; due regard is given to the concurrent economic, political and social developments and trends.

3 sem. hrs.

*Mk. 504—Development of Marketing Theory*

The emergence and evolution of marketing theory in 19th century economic literature are explored. This provides the basis for the critical and intensive study of current trends in its continuing development during the 20th century.

3 sem. hrs.

*Mk. 520—Seminar in Marketing*

Selected problems and topics in marketing are examined. Permission of the graduate faculty in accounting is a prerequisite.

3 sem. hrs.

*Mk. 522—Tutorial in Marketing*

Individual reading and research in a selected area is conducted under the direction of a member of the graduate marketing faculty. Permission of the individual faculty member is a prerequisite.

3 sem. hrs.



*CORE CURRICULUM COURSES*

Courses in the 400 series are open to qualified undergraduates and to graduate students who have not had undergraduate work in the areas represented by the courses. Courses in this series *cannot* be substituted for any course numbered 500 or over.

Course descriptions are in the College of Business Administration, Loyola University Bulletin.

*B.A. 400—Statistics*

The course concentrates on statistical methods with particular reference to their application in business. Sources and collection of data and sampling procedures are studied. Included also are statistical measures and tests for validity and reliability, the construction and use of index numbers, problems of time series, regressions and correlations. 3 sem. hrs.

*B.A. 402—Financing of Business Enterprises*

The functions of money and the nature of the monetary and banking systems of the United States are reviewed. The financing and concomitant requirements for organizing and establishing business enterprises are studied. The financial policies of corporations are emphasized. 3 sem. hrs.

*B.A. 404—Mathematics Applied to Business and Economics*

This course treats a wide variety of examples of modern mathematics used in solving business problems and formulating economic theory. 3 sem. hrs.

## MONTHLY PUBLICATION

*Social Digest*, a monthly magazine published by the Graduate Division of the College of Business Administration, prints original studies in economics and sociology and condensations of important speeches, books and magazine articles dealing with modern socio-economic thought. The magazine is edited by Dr. Hubert F. Schiffer, S.J., assoc. professor of economics, and has an average monthly circulation of 7,100. The subscription price is \$3.00 a year (320 pages).

# Graduate Division of Education

Rev. Joseph B. Tremonti, C.S.V., Ed.D., *Chairman*

## PURPOSE

The Graduate Division of the Department of Education is organized to offer advanced courses to members of the teaching profession for the purpose of understanding and analyzing the fundamental problems involved in the work of teaching, to acquire proficiency in the techniques of such understanding and analysis, and to become acquainted with the attempts of others toward the solution of these problems.

It is designed to offer preparation for the positions of elementary and secondary principals, supervisors and guidance counselors in public, parochial and private schools, and for advanced preparation for elementary and secondary teachers.

## ADMISSION

The Graduate Division of the Department of Education offers courses of instruction leading to the degree of Master of Education for properly qualified students who have been admitted as classified graduate students. Applications for Admission must be filed with the Graduate School one month before the beginning of the session when the student plans to begin graduate work. The applicant for admission must write to the Registrar of each college previously attended and request an official transcript *in duplicate* of all undergraduate and graduate work. These transcripts must be sent by the college to the Graduate School, Loyola University, New Orleans, Louisiana 70118. If the applicant for admission attended Loyola University as an undergraduate student, received his degree from Loyola University, and attended no other college or university after he received this degree no additional transcripts of work are required.

The Application for Admission and the transcripts of previous work are reviewed by the Executive Committee of the Department of Education. If these are approved by the Executive Committee, the applicant is then allowed to take the qualifying examination prescribed by the Department. The applicant is informed of this action and of the date and the

time of the qualifying examination. Admission is based on the record of all previous work and the results of the qualifying examination. This admission must be obtained before admission to class.

For the first twelve hours of graduate work all students are accepted only on a provisional basis. Upon the satisfactory completion of this work (i.e. with a "B" average) the student becomes a classified graduate student. The Executive Committee of the Department of Education has the final right to admit students to this category.

A classified graduate student is one who has received the Bachelor's degree from a recognized college with a major in education, who has no prerequisite undergraduate work to make up, who has completed the upper division work satisfactorily (i.e. with a mark of "B" or better) in the undergraduate major in education, who is following a program of studies leading to an advanced degree, and who has been admitted by the Executive Committee of the Department of Education as a classified graduate student.

Applicants possessing degrees other than education are eligible for admission to the graduate program in education providing they have completed the education requirements for state certification or their equivalent.

A number of properly qualified out-of-course students may be admitted to take specific courses for graduate credit provided that the applicant has filed application for admission and official transcripts of previous academic work with the Graduate School in ample time to receive notification of admission as an out-of-course student.

Among these may be students already possessing a Master's Degree and wishing to pursue the thirty hours beyond the Master's level in order to receive salary increments. Students in good standing who are teachers pursuing hours beyond the Master's level may schedule 6 semester hours of graduate work during a semester plus nine hours in the summer by attending the six and three week terms.

Upon the successful completion of all course work and with the approval of the Executive Committee of the Department of Education, a classified graduate student is permitted to make application for the comprehensive examination. This ap-

plication must be filed not later than two weeks after the opening of the semester in which the degree is sought.

#### NOTE

An undergraduate student of Loyola University who lacks not more than six semester hours of credit for a Bachelor's degree and who has attained an average of "B" or better in the upper division work of his undergraduate major in education may, upon the recommendation of his Dean and with the approval of the Executive Committee of the Department of Education, register for a maximum of six semester hours of graduate work provided that he meets all other requirements for provisional registration and provided that the total program of courses for credit and non-credit in graduate and undergraduate work does not exceed twelve semester hours.

#### ADVANCED STANDING

Loyola University does not confer a degree upon anyone who has not completed an entire academic year of satisfactory work under the guidance of the University. For the integration of the graduate program, the student should take all of his graduate courses for his Master's degree at Loyola University. A maximum of six semester hours, however, may be accepted in exceptional instances by the Executive Committee of the Department of Education.

#### LIMIT OF TIME

Work completed more than six years before the date on which the Master's degree is to be conferred will not be accepted in fulfillment of requirements for the degree.

#### RESIDENCE

For the degree of Master of Education, one academic year of residence is required in a program of at least 30 semester hours of graduate work. This work must include one semester, or its equivalent in summer terms, as a full-time student. Ordinarily two summer terms will be interpreted as meeting this minimum requirement. Not more than twelve semester hours may be scheduled by a full-time student in any one semester. A full-time teacher may schedule only 3 semester hours of graduate work during a semester. In the summer session 6 semester hours of graduate work may be scheduled for the six-week term and three hours during the three-week term.

## COURSE REQUIREMENTS

The candidate must complete thirty semester hours of graduate work in course with a passing mark in each course. The mark, "A", indicates excellent or superior work. The mark, "B", indicates satisfactory work acceptable for graduate credit. The mark "C" indicates passing but unsatisfactory work at the graduate level. The mark "F" is considered a failing grade. A point-hour ratio of 3.00 for graduate work is required for the Master's degree. This computation is based upon four quality points per semester hour for an "A", three quality points per semester for a "B", two quality points per semester for a "C", and no quality points for the mark of "F". The quality-point ratio is computed by dividing the total number of quality points earned by the total number of semester hours attempted.

A student who obtains a "C" is automatically placed on probation and his status is subject to review by the Executive Committee.

A student who earns an "F" in a required course would have to repeat the course and earn a grade of "B" or better.

Any student earning two or more "F's" is automatically dropped from the degree program and will be ineligible to take courses in the Department of Education.

## COMPREHENSIVE EXAMINATION

A comprehensive written and oral examination covering the common core and the major field of work shall be passed by the candidate upon completion of his or her course work. When the degree is deferred pending another examination, the next examination must be postponed for a minimum of one semester, or for a longer period at the discretion of the Committee in Charge of the Candidacy. The second examination for the Master's degree is final. If unsuccessful, no further examination will be allowed.

## FEES

Fees for full-time students (9-12 hours) \$225.00; for part-time students, fees are the same as those for the College of Arts and Sciences.

The tuition fee for all part time courses is \$25.00 per se-

mester hour, except for accredited teachers and members of a religious community.

For accredited teachers who are at present engaged in teaching, the tuition fee is \$20.00 per semester hour. The teacher's certificate accompanied by a statement of present employment should be presented to the Registrar for inspection at the time of registration.

For students who are members of a religious community, the charges are \$15.00 per semester hour.

A registration fee of \$5.00 and a library fee of \$5.00 are charged each semester.

A non-refundable application fee of \$10.00 payable to Loyola University must accompany an application for admission to the program.

### COURSE PROGRAM

The student's program is planned with his adviser from the full curriculum of graduate courses. A minimum of twelve hours must be completed in one specific area. The areas of specialization include the following: elementary and secondary administration and supervision, guidance, elementary education, and secondary education. This program is subject to the approval of the Executive Committee of the Department of Education.

The program will include the following core courses:

Ed. 401 Philosophy of Education

Ed. 410 Theories of Education

Ed. 490 Methodology of Educational Research

Ed. 491 Statistics in Education

(Ed. 401 and 410 Constitute the Common Core.)

### COURSES

#### *Ed. 401—Philosophy of Education*

A brief study of the major philosophies, including contemporary movements, which affect educational thought. 3 sem. hrs.

#### *Ed. 410—Theories of Education*

A study of the major theories of education which philosophy of education, sociology of education, and psychology of education have developed. Current American school theory will be discussed as will be related contemporary issues in education. Prerequisite: Ed. 401.

3 sem. hrs.

***Ed. 420—School Administration: Elementary***

Principles, policies, practices and problems of elementary school administration; the role and functions of the elementary principal; the improvement of pupil discipline and school-community relations.

3 sem. hrs.

***Ed. 421—School Supervision: Elementary***

Principles, policies, practices and problems of elementary school supervision; inservice education of teachers; replacement or modification of the assign-study-recite-test scheme of teaching by more modern and defensible teaching techniques.

3 sem. hrs.

***Ed. 422—School Administration: Secondary***

Principles, policies, practices and problems of secondary school administration; the role and functions of the secondary principal; the improvement of pupil motivation and teacher morale; administering the comprehensive secondary school.

3 sem. hrs.

***Ed. 423—School Supervision: Secondary***

Principles, policies, practices and problems of secondary school supervision; the aims and objectives of secondary education; coordination, reform and reorganization of the secondary school curriculum.

3 sem. hrs.

***Ed. 424—School Administration: Financing Public Education***

The development of public support of education in the United States; the role of federal, state, and local government in financing education; principles, practices and problems relative to the sources, distribution, and expenditure of public funds.

3 sem. hrs.

***Ed. 425—School Administration: Legal Foundations and Problems***

Principles of law as found in Constitutional provisions, typical statutes and decisions of cases as they affect education, public and private, are examined in this course from the viewpoint of governing bodies, administrators, educators, students and those responsible for them.

3 sem. hrs.

***Ed. 426—Organization and Administration of Public Education in the United States***

The scope and sequence of American Public Education; the role of the federal government, state government, and the local school district in American public education; problems, responsibilities and activities of public school teachers.

3 sem. hrs.

***Ed. 431—Mental Hygiene (Health) in Modern Education***

The principles, problems, and techniques of personal mental hygiene as applied in the developmental guidance of students in the educational process. The role of the school in fostering the pupil's emotional development, social adjustment, and the prevention, early recognition, and corrections of maladjustments.

3 sem. hrs.

***Ed. 432—Supervision of Student Teachers***

Role of the supervising teacher in student teaching. For those teachers who are interested in supervising elementary or secondary student teachers. Prerequisite: teaching experience and consent of instructor.

3 sem. hrs.

***Ed. 440—Elementary School Curriculum***

Comprehensive survey and study of the elementary school program.

3 sem. hrs.

*Ed. 442—Problems in Elementary Education*

Seminar in problems peculiar to education at the elementary level.  
3 sem. hrs.

*Ed. 450—The Secondary School Curriculum and Co-curricular Activities*

Historical development of secondary education in the United States; objectives, purposes, and functions of curriculum including co-curricular activities; principles of curriculum development and re-organization; organization and structure of the curriculum; factors influencing the curriculum.  
3 sem. hrs.

*Ed. 451—Problems in Secondary Education*

A critical analysis of the problems and issues of secondary education today and an appraisal of the proposals for suggested changes and improvements in secondary education.  
3 sem. hrs.

*Ed. 453—Advanced Psychology of Adolescence*

A thorough study of the adolescent personality through the analysis of physical, emotional, social, motivational, intellectual, and volitional developmental changes, behavioral characteristics, basic problems and adjustments.  
3 sem. hrs.

*Ed. 454—The Junior High School*

Current administration, principles and practices essential to the effective organization and management of the junior high schools. Will consider the educational leadership required of the junior high school principalship in such areas as the program of studies, schedule making, instructional materials, student activities, staff relationships, and school-community relation.  
3 sem. hrs.

*Ed. 455-456—Practicum/Developmental Reading Methods for the Secondary School Teacher*

Analysis of research; the objectives of developmental reading; how these objectives are achieved; practical experiences with the materials and supplementary equipment used in the field. Experience will be provided with students in grades 7-12. Summer only. Both courses must be taken together.  
6 sem. hrs.

*Ed. 457—Reading Skills*

A course designed to explore, in depth, the skills to be developed in a reading program, the grade-placement of these skills, and methods for developing efficiency in the application and usage of these skills.  
3 sem. hrs.

*Ed. 458—Problems in Teaching Reading*

A course to give the classroom teacher, administrator, and reading specialist insight concerning the problems related to retardation in reading. Causes, diagnostic procedures, and remedial methodology for increasing the reading efficiency of children and adolescents will be emphasized.  
3 sem. hrs.

*Ed. 460-461—Practicum/Developmental Reading Methods for the Elementary School Teacher*

For teachers of grades K-6 only. A class-practicum course stressing the correction of reading problems at the elementary level and the operation of developmental programs and individualized instruction in reading by the classroom teacher. Children will be provided for the practicum. These courses must be taken together. Summer only.  
6 sem. hrs.



***Ed. 463—Audio-Visual Aids***

The organization and administration of an audio-visual program and the effective utilization of audio-visual equipment, materials and techniques. 3 sem. hrs.

***Ed. 470—Principles of Guidance***

A survey of the history, nature, purposes, functions, principles and practices of organized guidance in our educational system. 3 sem. hrs.

***Ed. 471—Analysis of the Individual: Educational Tests and Measurements***

A survey of the educational measurement movement; the principles and techniques, of constructing and improving teacher-made tests; an appraisal of intelligence, aptitude, achievement, and interest tests relative to their validity, reliability, administration and interpretation. 3 sem. hrs.

***Ed. 474—Educational and Occupational Information***

A study of various types of published information and multi-sensory materials, various occupational classification systems, methods of collecting, classifying, evaluating, and using occupational information. 3 sem. hrs.

***Ed. 475—Counseling***

Theories and techniques of counseling with consideration given to the principles, practices, tools, problems, and evaluation of counseling. 3 sem. hrs.

***Ed. 476—Group Guidance***

The nature, importance, and types of group guidance in a guidance program; an intensive study of the contents, materials and techniques utilized in group guidance. 3 sem. hrs.

***Ed. 477—Organization and Administration of Guidance***

A careful study of the various types of guidance programs current in theory and practice. This will stress the functions of guidance at the elementary, secondary, college, and adult level. 3 sem. hrs.

***Ed. 479—Practicum in Guidance***

This course is designed to apply the testing and counseling knowledge and skills acquired in other courses. In classroom discussion trends, issues, professional stature and ethical conduct as well as related services will be emphasized. This should be the last course taken in the student's guidance sequence. 3 sem. hrs.

***Ed. 490—Methodology of Educational Research***

An extensive study of the methods and tools of educational research with emphasis upon student application of the scientific method through the selection, development, and reporting of a research topic. 3 sem. hrs.

***Ed. 491—Statistics in Education***

The computation, use and understanding of frequency distributions, measures of central tendency, measures of variability, normal curve, correlation, and statistical inference as applied to education and found in educational literature. Prerequisite: Ed. 490 3 sem. hrs.

***Ed. 499—Research Problem in Education***

An individual research project, under close supervision of a faculty member, when particular needs of a student cannot be satisfied by the regularly scheduled courses. Prerequisite: Ed. 490. 1-3 sem. hrs.

# The Graduate Program in Chemistry, Mathematics, and Physics

The departments of Chemistry, Mathematics, and Physics offer a graduate program uniquely designed for Teachers and leading to a Master of Science in Teaching. The program is restricted at present to those who are actually teaching in a secondary school (grades 7-12) or in a junior college. It is designed to improve subject matter mastery in their teaching field and in related sciences, as well as to keep the teachers abreast of modern developments.

## ADMISSION

Any teacher who has a Bachelor's degree from a recognized institution and has undergraduate training in his chosen field may be admitted to the degree program. The adequacy of undergraduate training will be determined by the Graduate Committee of the respective Department and based on official transcripts of previous work; on results of a placement examination; and on personal interviews with the applicant.

Admission to the program in every case will be on a provisional basis until at least twelve hours are completed with a quality point ratio of 3.00, that is, a grade of B (satisfactory work acceptable for graduate credit). At the completion of these twelve hours, the student may be admitted by the Graduate Committee to the category of classified graduate student.

Application for admission must be made to the Graduate Committee of the department concerned, Loyola University, New Orleans, Louisiana, 70118.

## DEGREE REQUIREMENTS

A minimum of 30 and a maximum of 36 graduate semester hours with a quality point ratio of 3.00 (B average) are required. Of these hours, at least 18 must be in the major field and taken at Loyola University. A maximum of 6 hours may be transferred from other recognized institutions with explicit approval of the Graduate Committee. Up to 6 hours may be

taken in the field of Education, the remaining hours may be taken in a related science field.

A working knowledge of mathematics up to and including the Calculus is required; and a reading knowledge of at least one modern foreign language is desirable.

If the degree is to be granted for course work alone, satisfactory performance in a comprehensive examination on all courses is required. In lieu of this comprehensive examination, and with prior approval of the Graduate Committee of the respective department, the Candidate may elect to write a thesis under faculty supervision. In this latter case, an oral "defense" of the thesis, or of the research on which it is based, may take the place of the comprehensive examination.

Each candidate must have satisfactorily completed either the thesis or the comprehensive examination at least three months before the date of graduation.

#### LIMIT OF TIME

Work completed more than six years before the date on which the Master's degree is to be conferred will not be accepted in fulfillment of requirements for the degree.

# Chemistry

M. H. Macdonald, Ph.D., *Acting Chairman*

## CHEMISTRY COURSE OFFERINGS

- Ch. 401-402T—General Chemistry, lecture and lab*  
2 semesters, 8 hours credit
- Ch. 411T—Quantitative Analysis, lecture and lab*  
1 semester, 4 hours credit
- Ch. 412T—Analytical Chemistry I*  
1 semester, 4 hours credit
- Ch. 413T—Analytical Chemistry II*  
1 semester, 4 hours credit
- Ch. 421T—Organic Chemistry, lecture and lab*  
1 semester, 4 hours credit
- Ch. 422T—Organic Reactions and mechanisms, lecture*  
1 semester, 3 hours credit
- Ch. 423T—Techniques of Organic Chemistry, lab*  
1 semester, 1 hour credit
- Ch. 431T—Inorganic Chemistry, lecture*  
1 semester, 3 hours credit
- Ch. 432T—Inorganic Chemistry Techniques, lab*  
1 semester, 1 hour credit
- Ch. 441T—Physical Chemistry, lecture and lab*  
1 semester, 4 hours credit
- Ch. 442T—Colloid Chemistry, lecture*  
1 semester, 3 hours credit
- Ch. 443T—Colloid Chemistry, lab*  
1 semester, 1 hour credit
- Ch. 444T—Thermodynamics, lecture*  
1 semester, 3 hours credit
- Ch. 451T—Biochemistry, lecture and lab*  
1 semester, 4 hours credit
- Ch. 452T—Biochemical Mechanisms, lecture*  
1 semester, 3 hours credit
- Ch. 453T—Biochemical Techniques, lab*  
1 semester, 1 hour credit
- Ch. 499T—Research in Chemistry Teaching*  
1 semester, 3 hours credit

# Mathematics

Rev. John F. Keller, S.J., M.S., *Chairman*

The following courses are especially designed for Teachers of Mathematics according to the Recommendations of the Mathematical Association of America for the Training of Mathematics Teachers. See detailed report of the Committee on the Undergraduate Program in Mathematics and its Panel on Teacher Training in *American Mathematical Monthly*, volume 67, 1960, pp. 982-991. Also see similar report in *The Mathematics Teacher*, volume LIII, number 8, 1960.

## MATHEMATICS COURSE OFFERINGS — 1966-1967

Fall: Mt. 413, 433, 447, 493

Spring: Mt. 414, 434, 448, 494

### *Mt. 401—Foundations of Mathematics*

The axiomatic method; theory of sets; infinite sets; countability and cardinality; well-ordered sets; ordinal numbers; mathematical logic; intuitionism; formalism; Hilbert's "proof theory"; Godel's proof. 3 sem. hrs.

### *Mt. 413-414—Abstract Algebra*

Algebraic structures, such as groups, rings, fields, etc. Rigorous proofs emphasizing the axiomatic treatment. 6 sem. hrs.

### *Mt. 421-422—Introduction to Linear Algebra and Matrices*

Systems of Linear equations; Vector spaces; basic operations for matrices; determinants; bilinear and quadratic functions and forms; linear transformations on a vector space and canonical representations of a linear transformation. 6 sem. hrs.

### *Mt. 423-424—Linear Algebra*

Real, finite-dimensional cases. Concrete manipulation of vectors and matrices. Vector equations and inequalities, intuitive introduction to linear programming and games. Linear functions and transformation, including a thorough understanding of the solution of  $m$  equations in  $n$  unknowns. 6 sem. hrs.

### *Mt. 431-432—Foundations of Geometry and Trigonometry*

A course designed for a formal development of affine and Euclidean geometry, attempting to present a coherent development of those portions of geometry actually a part of present day mathematics, meeting the standards of rigor of, employing the concepts and procedures of, and attaching naturally to, present day mathematics. The algebra of real numbers is the basis of this geometry. 6 sem. hrs.

### *Mt. 433-434—Geometry*

Foundations of geometry (in the sense of Hilbert). Generalization of the idea of congruence to include rigid motions, that is, one-to-one correspondence preserving distances. A corresponding generalization of the ideas of similarity. Measure theory; familiar area and volume formulas as theorems; Cavalieri's Principle. 6 sem hrs.

*Mt. 435—Pure Analytic Geometry*

Points, lines, and so on are defined and treated in terms of an algebraic model. This development is based on the fifteen axioms for plane geometry as published in Hilbert's *Grundlagen*. The undefined terms in the axioms — six in number — are shown to be in algebraic correspondence by means of coordinates. 3 sem. hrs.

*Mt. 447-448—Probability and Statistics*

Probability theory from a set-theoretic point of view, and application of basic probability theory to problems of statistical inference. 6 sem. hrs.

*Mt. 453-454—Calculus and Analytic Geometry*

A more rigorous treatment of the material in Mt. 353-354 with greater manipulative skills expected. Infinite sequences and series. Elementary differential equations. 6 sem. hrs.

*Mt. 493—Programming Mathematical Problems for Digital Computers*

Input, output, and storage devices; binary, octal, hexadecimal and other number systems; coding and programming in machine language; flow charts; sequencing; loops and branches; automatic address modification; precision and scaling; subroutines; testing programs; optimum programming; automatic programming; compilers. 3 sem. hrs.

*Mt. 494—Numerical Analysis*

Ordinary finite differences; divided differences; interpolation; sub-tabulation; series and integrals; numerical solution of differential equations; linear systems and matrices; solution of linear equations; difference equations; solution of partial differential equations by difference methods; control of errors. Prerequisite: Mt. 493. 3 sem. hrs.

*Mt. 499—Research*

3 sem. hrs.

# Physics

Rev. F. A. Benedetto, S.J., Ph.D., *Chairman*

Special advanced offerings designed specifically for High School Teachers of Physics will be presented as demand and resources permit. These offerings will generally carry graduate credit and will be applicable toward the M.S. (Physics Teaching) degree. Applicants for such degree program must fulfill the general requirements stated on pages 36 and 37 of this bulletin.

## PHYSICS COURSE OFFERINGS — 1966-1967

Fall and Spring: Physics 480-490; Physics 482-492.

### *Ph. 480-490—The PSSC Program*

Lectures and laboratory sessions utilizing materials developed by the Physical Sciences Study Committee, including the PSSC Text, Laboratory Manual, Teachers' Resource Book and Guide, films. 6 sem. hrs.

### *Ph. 481-491—Foundations of Modern Physics*

Historical and philosophical origins of present-day physical theories. Fields and forces. Modern energy-space-time concepts. Selected experiments from Modern and Atomic physics. 6 sem. hrs.

### *Ph. 482-492—General Physics*

A review of the traditional divisions of basic physics with special emphasis on "workshop" participation, general discussion of problems arising in high school classrooms and the analysis and solutions of physical problems. Special experiments and demonstrations by participants according to field of interest. 6 sem. hrs.

### *Ph. 483-493—Classical Mechanics and Mathematical Methods*

A theoretical course based fundamentally on the conservation theorems. Foundations of classical mechanics including statics, kinematics, and dynamics of a rigid body, oscillatory and planetary motion, are treated. Also included are selected topics from thermodynamics and statistics. 6 sem. hrs.

### *Ph. 484-494—Elements of Electricity and Electronics*

Theory, circuitry, and measurements in electricity and electronics. AC and DC nets are considered; solid-state as well as thermionic devices will be treated. Measurements will include resistivity, currents, potentials, capacitance, and inductance. Instrumentation will be adaptable to the high school inventory as far as practicable. Experiments will include oscillators, amplifiers, photo and control devices. 6 sem. hrs.

### *Ph. 495—Basic Optics and Wave Motion*

Geometrical and physical optics using simplified equipment readily available. Fundamental principles, rather than completed optical instruments, will be emphasized. Primarily a laboratory course modeled after the Palmer manual. 3 sem. hrs.

*Ph. 496—Atomic Physics*

Origin and development of some of the more important concepts of the physics of the 20th Century, with main emphasis being placed on introductory quantum principles, the extra-nuclear structure of the atom, and an introduction to radioactivity and nuclear processes.

3 sem. hrs.

*Ph. 497—Introductory Electromagnetics*

A presentation from field-theoretical viewpoint. Topics to be presented will include fields, potential, dielectrics, electromagnetics, currents, Maxwell's equations, and waves. The use of calculus and elementary vectors will be presumed.

3 sem. hrs.

*Ph. 499—Research*

2-4 sem. hrs.



# JESUIT EDUCATIONAL ASSOCIATION

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**Edward B. Rooney, S.J., President**  
49 East 84th Street, New York, N. Y. 10028  
**Rev. James F. Whelan, S.J., Regional Director**  
255 N. Eighth Street, Ponchatoula, Louisiana

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## **American Jesuit Colleges and Universities**

### **ALABAMA**

SPRING HILL COLLEGE, MOBILE

### **CALIFORNIA**

LOYOLA UNIVERSITY, LOS ANGELES  
SANTA CLARA UNIVERSITY, SANTA CLARA  
UNIVERSITY OF SAN FRANCISCO, SAN FRANCISCO

### **COLORADO**

REGIS COLLEGE, DENVER

### **CONNECTICUT**

FAIRFIELD UNIVERSITY, FAIRFIELD

### **DISTRICT OF COLUMBIA**

GEORGETOWN UNIVERSITY, WASHINGTON

### **ILLINOIS**

LOYOLA UNIVERSITY, CHICAGO

### **LOUISIANA**

LOYOLA UNIVERSITY, NEW ORLEANS

### **MARYLAND**

LOYOLA UNIVERSITY, BALTIMORE

### **MASSACHUSETTS**

BOSTON COLLEGE, BOSTON  
HOLY CROSS COLLEGE, WORCESTER

### **MICHIGAN**

UNIVERSITY OF DETROIT, DETROIT

### **MISSOURI**

ROCKHURST COLLEGE, KANSAS CITY  
ST. LOUIS UNIVERSITY, ST. LOUIS

### **NEBRASKA**

THE CREIGHTON UNIVERSITY, OMAHA

### **NEW JERSEY**

SAINT PETER'S COLLEGE, JERSEY CITY

### **NEW YORK**

CANISIUS COLLEGE, BUFFALO  
FORDHAM UNIVERSITY, NEW YORK  
LEMOYNE COLLEGE, SYRACUSE

### **OHIO**

JOHN CARROLL UNIVERSITY, CLEVELAND  
THE XAVIER UNIVERSITY, CINCINNATI

### **PENNSYLVANIA**

SAINT JOSEPH'S COLLEGE, PHILADELPHIA  
UNIVERSITY OF SCRANTON, SCRANTON

### **WASHINGTON**

GONZAGA UNIVERSITY, SPOKANE  
SEATTLE UNIVERSITY, SEATTLE

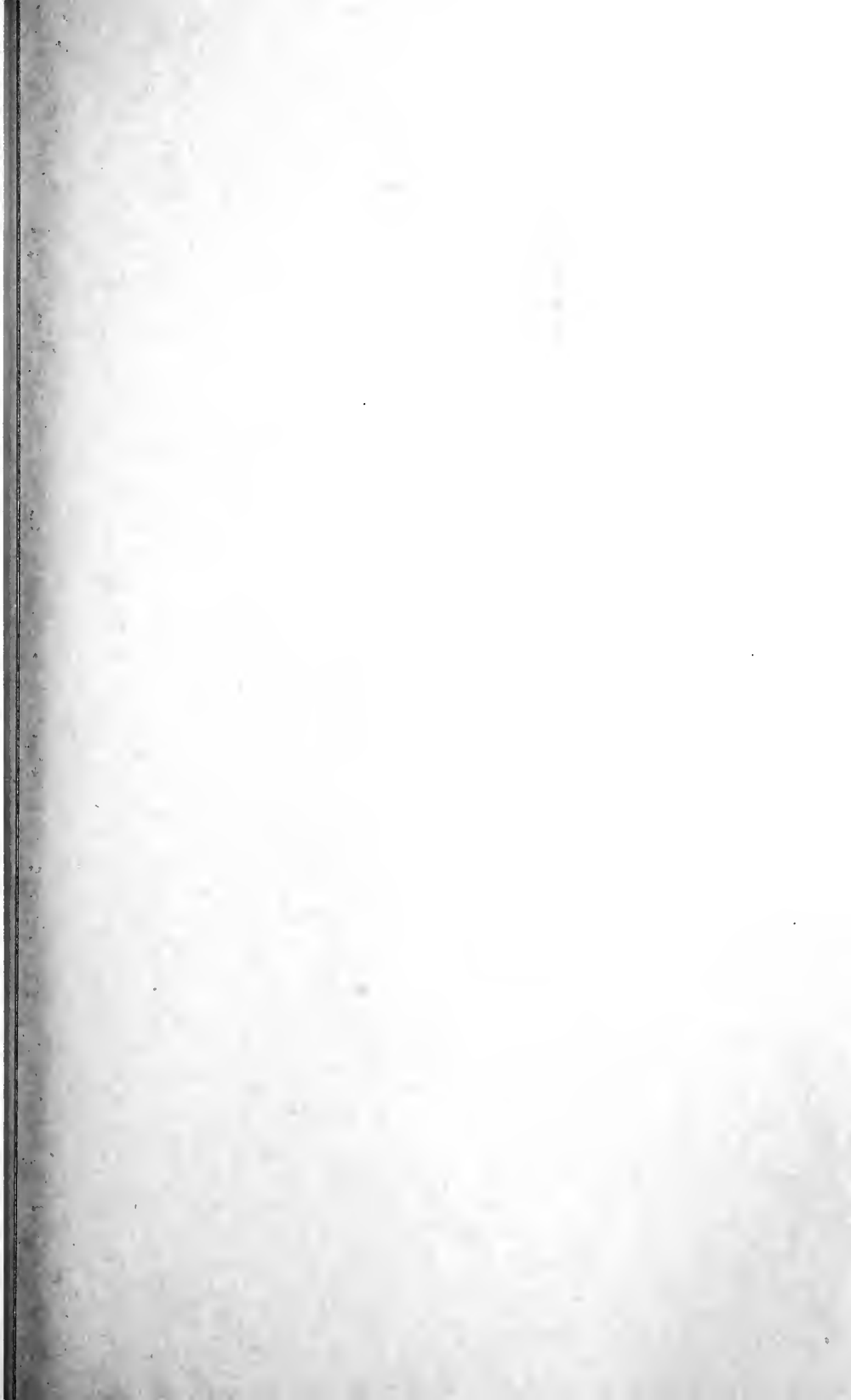
### **WEST VIRGINIA**

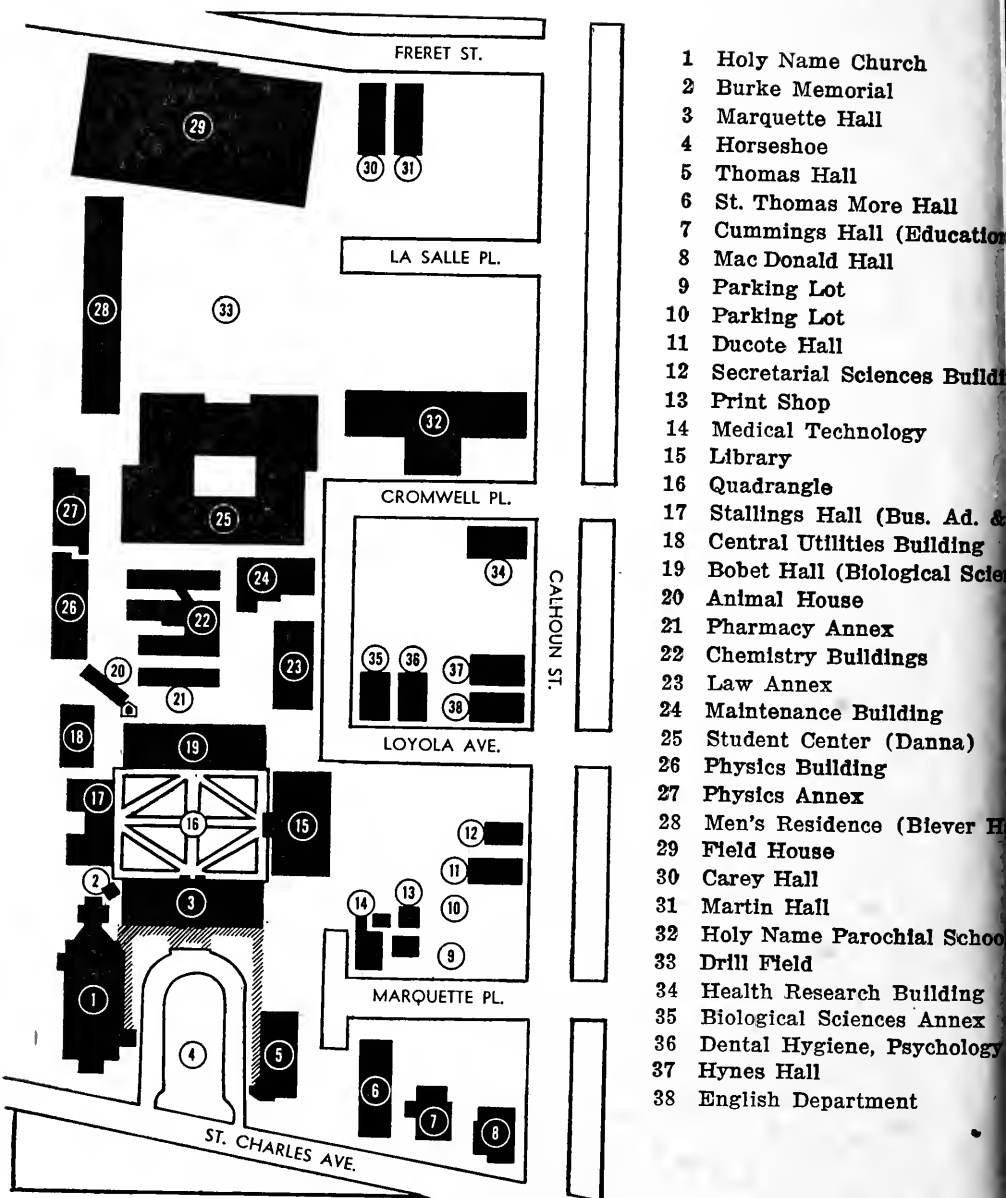
WHEELING COLLEGE, WHEELING

### **WISCONSIN**

MARQUETTE UNIVERSITY, MILWAUKEE







- 1 Holy Name Church
- 2 Burke Memorial
- 3 Marquette Hall
- 4 Horseshoe
- 5 Thomas Hall
- 6 St. Thomas More Hall
- 7 Cummings Hall (Education)
- 8 Mac Donald Hall
- 9 Parking Lot
- 10 Parking Lot
- 11 Ducote Hall
- 12 Secretarial Sciences Building
- 13 Print Shop
- 14 Medical Technology
- 15 Library
- 16 Quadrangle
- 17 Stallings Hall (Bus. Ad. & Economics)
- 18 Central Utilities Building
- 19 Bobet Hall (Biological Sciences)
- 20 Animal House
- 21 Pharmacy Annex
- 22 Chemistry Buildings
- 23 Law Annex
- 24 Maintenance Building
- 25 Student Center (Danna)
- 26 Physics Building
- 27 Physics Annex
- 28 Men's Residence (Biever Hall)
- 29 Field House
- 30 Carey Hall
- 31 Martin Hall
- 32 Holy Name Parochial School
- 33 Drill Field
- 34 Health Research Building
- 35 Biological Sciences Annex
- 36 Dental Hygiene, Psychology
- 37 Hynes Hall
- 38 English Department